



Evaluation #

200520-I
(Replaces 200006-I)

Safety & Buildings Division
201 West Washington Avenue
P.O. Box 2658
Madison, WI 53701-2658

Wisconsin Building Products Evaluation

Material

“Essence” (EIFS)
Exterior Insulation and Finish System

Manufacturer

Sto Corporation
3800 Camp Creek Pwky., Bldg. 1400, Ste. 120
Atlanta, GA 30331

SCOPE OF EVALUATION

GENERAL: This report evaluates the use of Sto “Essence” (EIFS) an exterior insulation system manufactured by Sto Corporation. The exterior insulation system was evaluated for use over hourly-rated and non-rated combustible and noncombustible exterior walls.

Comm requirements below in accordance with the current **Wisconsin Uniform Dwelling Code for 1 & 2 family dwellings:**

- **Foam Plastic:** The foam plastic expanded polystyrene insulation board used with the Sto “Essence” (EIFS) exterior insulation system shall be installed in accordance with the foam plastic requirements of **s. Comm 21.11(1)**.

The **IBC** requirements below in accordance with the current **Wisconsin Amended ICC Code:**

- **Foam Plastic:** The expanded polystyrene insulation board used with the Sto “Essence” (EIFS) exterior insulation system in accordance with the foam plastic requirements of **s. IBC 2603.1, 2603.2, 2603.3, and 2603.4**.
- **Wind Load:** The Sto “Essence” (EIFS) exterior insulation system was evaluated in accordance with the wind load requirements of **s. IBC 1609.1**.
- **Weathering:** The Sto “Essence” (EIFS) exterior insulation system was evaluated in accordance with the weathering requirements of **s. IBC 1403.2 Exception 2**.

DESCRIPTION AND USE

The Sto “Essence” (EIFS) exterior insulation system is a nonstructural wall system intended for application to a vertical substrate of concrete, masonry, gypsum sheathing, exterior grade or Exposure 1 wood based sheathing, or

gypsum sheathed wood or steel studs. A thermal barrier is required as an interior finish if substrates other than concrete or masonry are used.

The five components of the Sto “Essence” (EIFS) exterior insulation system are an adhesive or mechanical attachment system; a rigid expanded polystyrene board, a fiberglass reinforcing fabric; a base coat, and a synthetic plaster finish.

There are three adhesive types:

- **Primer/Adhesive** is a acrylic based adhesive intended to be mixed with Type I Portland Cement and is used to bond the insulation board to substrates of concrete, masonry and water-resistant gypsum sheathing.
- **Primer/Adhesive-B** is a polymer modified cement based bagged product, used as an adhesive on the same substrates as Primer/Adhesive.
- **One Part/Adhesive** is premixed and is used to bond the insulation board to substrates of exterior grade or Exposure 1 wood based sheathing and gypsum sheathing. Either Primer/Adhesive or Primer/Adhesive-B may be used as a base coat to embed mesh onto polystyrene insulation. One Part/Adhesive is not to be used as a base coat. A mechanical attachment system developed by STO Industries may also be used to attach the polystyrene board to substrates of block, concrete and gypsum sheathed wood or steel studs.

The polystyrene board has a nominal density of 1.0 pcf, a flame spread rating of 25 or less and a smoke density rating of 450 or less. The polystyrene board has a minimum thickness of 3/4-inch and a maximum thickness of 4-inches. The normal width used in the Sto “Essence” (EIFS) exterior insulation system is 24-inches wide, and 48-inches long.

The reinforcing mesh is an open-weave fiberglass fabric with an alkali- resistant coating. The fabric is attached to the insulating board by embedment in Sto “Essence” Primer/Adhesive or Primer/Adhesive-B. The fabric is continuous around corners and overlaps a minimum of 2 1/2-inches at all fabric edges.

After the base coat has dried for 24 hours, the finish coat is applied.

TESTS AND RESULTS

Modified ASTM E108 tests were performed on a full scale Sto “Essence” (EIFS) exterior insulation system in its end use condition for all three attachment systems used to bond the polystyrene board to the substrate. The results of all tests indicated that the Sto “Essence” (EIFS) exterior insulation system did not propagate flames over the surface or through the core.

Additional testing was conducted to evaluate weather resistant performance properties, bond strength, moisture resistance and wind-driven rain tests. The results of these tests indicate adequate performance of the Sto “Essence” (EIFS) exterior insulation system.

LIMITATIONS OF APPROVAL

Comm limitation requirements below in accordance with the current **Wisconsin Uniform Dwelling Code for 1- & 2-family dwellings**:

- The Sto “Essence” (EIFS) exterior insulation system is a nonstructural exterior wall system.
- The construction documents will contain details of the methods used to maintain the weather tightness of all penetrations, and signed and sealed by a registered professional as described in the codes.
- The above codes require exterior wall coverings to be weather-resistant, resisting both wind and rain. Corrosion-resistant flashing shall be provided at the top and sides of all exterior windows and doors and installed in such a manner as to make the opening leak proof. Flashing shall also be installed at all intersections and under windowsills to prevent water intrusion behind the wall veneer.
- The foam plastic insulation board shall be separated from the building interior by 1/2-inch gypsum wallboard or an equivalent approved thermal barrier material.

- Cement, sand aggregate, retarders, accelerators, fillers, anti-freeze agents or other additives shall not be added to any Sto “Essence” (EIFS) exterior insulation system products, except as specifically referenced in this evaluation.
- The maximum thickness of foam plastic shall be limited to 4 inches. The minimum thickness shall not be less than 1-inch.
- The EIF System shall be installed in accordance with the manufacturer’s installation instructions, Sto “Essence System, Specification E100, Division 7, Section 07240, Exterior Insulation and Finish Systems (EIFS), and subject to the limitations of this evaluation. The installation instructions shall be available at the job site at all times.

The **IBC** limitations below are in accordance with the current **Wisconsin Amended ICC Code**:

- **Foam Plastic:** The foam plastic expanded polystyrene insulation board used with the Sto “Essence” (EIFS) exterior insulation system shall be installed in accordance with the foam plastic requirements of **s. IBC 2603.1, 2603.2, 2603.3, and 2603.4.**
- The foam plastic insulation board shall bear a label in accordance with **s. IBC 1703.5** containing the following information: 1) Nominal Density, 2) Raw Material Type, 3) Molder’s Name and 4) Molder’s Third Party Labeling Agency.
- **Wind Load:** The Sto “Essence” (EIFS) exterior insulation system meets the wind load requirements of **s. IBC 1609.1.**
- **Weathering:** The Sto “Essence” (EIFS) exterior insulation system meets the weathering requirements of **s. IBC 1403.2 Exception 2.**
- When required, exterior walls shall be fire-resistance rated as required by **IBC Chapter 7**, in accordance with **s. IBC 1403.5.**

The rigid insulation component of the Sto “Essence” (EIFS) exterior insulation system shall be of polystyrene with a flame spread rating of 25 or less and a smoke developed rating of 450 or less when tested in accordance with ASTM E84 and shall not exceed a thickness of 4-inches.

The composite material shall be installed in strict accordance with the manufacturer's recommendation procedures and this approval.

This approval will be valid through December 31, 2010, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The product approval is applicable to projects approved under the current edition of the applicable codes. This approval may be void for project approvals made under future applicable editions. The Wisconsin Building Product Evaluation number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Revision Date:

Approval Date: February 6, 2006

By: _____

Lee E. Finley, Jr.

Product & Material Review

Integrated Services Bureau